ART. XX.—*Case of Carcinoma of the Bladder, with General Remarks on the Disease.* By C. THOMPSON, M.D., L. R. C. S. I., formerly Surgeon to the Finglas and Glasnevin Dispensaries, and Claremont Institution, and late Assistant-Surgeon, Rifle Brigade.

CAPTAIN S—, aged 60, of bilious temperament and sallow aspect, consulted me in August, 1853, under the following circumstances. He had in early life served in the Royal Artillery twelve years, of which three had been spent in the West Indies. He afterwards retired from the army, and continued to enjoy good health for many years; had been always temperate; had never suffered from gout or syphilis. His grandmother had died of carcinoma uteri. Three years ago his horse stumbled under him, and he received a bruise on the perineum from the pommel of the saddle. The effects of this accident, seemed, however, to have passed away. About this time he sustained a pecuniary loss, which caused him much anxiety and depression of spirits. In the summer of 1851 he went to London, where, on a very hot day, he fatigued himself excessively walking about town; that evening he was seized with sharp pain in the perineum, which was followed by hemorrhage from the urethra. This was the first indication of his complaint. From this time he began to suffer from difficulty and pain in passing water, and uneasiness about the neck of bladder; the pain, which was of a burning character, and extended at times to the glans penis, was increased by emptying the bladder. Micturition gradually became more frequent and distressing. He rapidly lost flesh, and at length, between bodily suffering and repeated attacks of hemorrhage, his health entirely gave way. He consulted the most eminent practitioners in London and Dublin. Each sounded him for stone, but, after repeated trials, failed to detect any calculus. These examinations gave him great agony. Some diagnosed his case to be disease of the prostate, with varicose veins of the urethra; others, chronic vesical catarrh; while a third party were of opinion he had fungoid disease of the neck of bladder. The usual remedies were prescribed, but the patient continued to grow worse. Before he consulted me, he had been under the care of my friend Dr. Thomson, of Liverpool, who made a microscopic examination of his urine, in which he discovered cancer cells, and portions of encephaloid detritus, which led him to infer the existence of malignant disease. He kindly acquainted me with the particulars of his examination, and there could be no longer any doubt as to the correctness of his

diagnosis. At this time the calls to micturate were very frequent, and accompanied by great suffering and difficulty. Complete retention often occurred. For a long time he would not allow any instrument to be passed; the last attempt to introduce one having been followed by profuse hemorrhage and an aggravation of his sufferings. Having, with difficulty, prevailed on him to submit to another trial, I succeeded in passing a No. 8 gum-elastic catheter, and drew off a quantity of dark-coloured ammoniacal urine, which was very turbid and offensive. No hemorrhage followed. The obstruction was evidently in the neck of the bladder, where the instrument was tightly grasped; and, in passing through, caused a sharp pang. No enlargement of prostate was detected per anum, nor could any tumour be felt above the pubes, where, however, the fat of the integuments must have rendered it very difficult of detection. During the day he was comparatively easy, but at night his distress was extreme. The slightest chill or the least irregularity of diet was sure to aggravate his complaint, and to bring on retention of urine. He often complained of pains in his back, which he attributed to lumbago. This pain was not increased by pressure, nor was it accompanied by nausea or retraction of testes. The appearance of the urine varied from time to time; sometimes it was clear, but mostly of a dark or smoky colour, turbid, and highly ammoniacal, from decomposed urea. Albumen was always present. On resting a few hours, a copious sediment formed, consisting of a thick, ropy, viscid mucus, mixed with pus and blood, and with a friable, sandy deposit of triple phosphate. Hemorrhage was frequent; sometimes the blood flowed nearly pure, at other times it was mixed with the urine; on other occasions it followed the stream of urine, and occasionally the latter would be interrupted by clots of mucus or blood getting impacted in the urethra, and requiring considerable force to dislodge them. The hematuria often came on suddenly, and apparently without any cause, contrasting in this respect with what obtains in stone, where the hemorrhage is induced by rough exercise or some mechanical cause of irritation. Appetite bad; tongue loaded, especially at root, with a yellow slime; bowels irregular, sometimes constipated, often affected with bilious diarrhœa, which, from its acrid character, excoriated the anus, and aggravated, by contiguous sympathy, the irritability of bladder. Latterly he had begun to suffer from palpitation and attacks of asthma, but there was no stethoscopic sign of heart disease, neither in the intervals of dyspnœa was there any evidence of pulmonary disorder. At times he appeared to rally, but by degrees his ap-

petite grew worse, and his strength and spirits entirely failed. The calls to make water now became almost incessant, and the convulsive efforts to empty the bladder were so agonizing that he often trembled in every limb. He died on the 18th of June, 1854, retaining his intellectual faculties perfectly clear to the last.

Treatment.—In the early stages, demulcents and mucilaginous mixtures, with liquor potassæ and hyoscyamus, decoction of pareira brava, buchu, uva ursi, Brandish's alkaline solution, with nitric spirit of ether, and Battley's sedative, &c., were prescribed. After a time, copaiba and cubebs were tried, but deranged the stomach, and could not be borne. Retention of urine was relieved by the warm hip-bath, and draughts of the tincture of sesquichloride of iron, with tincture of opium and nitric spirit of ether in camphor mixture. Hemorrhage was checked by gallic acid, to which the acetate plumbi and opium were sometimes added. Chalk mixture, with tincture of catechu, or kino, or the compound starch-powder, were given to stop diarrhœa. Constipation was relieved by fluid magnesia, compound rhubarb pill, or enemata of warm barley-water, to which castor-oil was sometimes added. Pain was relieved by opium, which may be regarded as the sheet-anchor in the treatment of these miserable cases. It was given largely, both by the mouth and rectum, in the forms of pill, draught, enema, and suppository. When in the latter stages, it began to lose its effect, hydrocyanic acid was advantageously resorted to. Chloroform was applied to the loins and hypogastrium, in the form of embrocation, but with little benefit. The diet was light, and as nourishing as could be borne, with a couple of glasses of old port or sherry, in Vichy or Seltzer water, every day. Malt, spirits, acid wines, and fruit of every kind (except strawberries), either disagreed with the stomach, or aggravated his complaint by imparting irritating qualities to the urine. Nothing afforded such relief as frequently washing out the bladder with warm decoction of poppy-heads, after which a couple of ounces of weak nitric acid lotion (1 minim to 1 ounce) were injected and allowed to remain some minutes in the bladder; this was occasionally alternated with a solution of nitrate of silver (1 grain to 3 ounces) in distilled water. These washings, which were followed by an opiate, afforded great relief for a time, though, like every other remedy, they at last gradually lost their effect.

Autopsy, 24 hours after death.—Surface livid; body less emaciated than might have been expected, especially the abdomen, which was covered with a deep layer of fat; head not

examined; chest well formed; no effusion in pleuræ, which looked healthy, except a few melanotic deposits on the surface; bronchi congested and containing mucus, some of their glands hardened and enlarged; lungs healthy, though much congested in the most depending parts; pericardium free from disease; heart rather enlarged, though soft and flabby in substance; its cavities and valves were sound.

Abdomen enormously tympanitic. Stomach small, pale, and attenuated, except near the pylorus, which was congested and thickened. The small intestines presented nothing remarkable, except some patches of congestion in the duodenum, and that the small glands were enlarged and indurated in parts. The cæcum showed patches of congestion, and the large intestines throughout presented similar appearances. The rectum was much congested, thickened in its coats, and narrowed in caliber. The areolar tissue also between it and the bladder was thickened and indurated. No ulceration was detected throughout the alimentary canal. Liver rather firm in structure, and yellowish, but otherwise normal. Spleen and pancreas presented no remarkable appearance. Scattered over the peritoneum were several melanotic spots, like those observed on the pleuræ. The urethra was perfectly healthy throughout, except at the membranous part, where a thin, narrow, membranous band extended across its canal, from one side to the other. The prostate was free from any appearance of disease. Bladder enlarged and profoundly altered. Close to the orifice of urethra, and springing from the triangular space between it and the orifices of the ureters, was a flat, cauliflower fungus, half the size of an orange, covered with vegetations, which presented an arborescent appearance, and which were streaked with deposits of triple phosphate, the interstices being filled with a viscid sanies. The calcareous deposit was friable, readily breaking down under the finger. On the posterior part a similar fungus existed, but of smaller size. The cavity of the bladder was nearly filled by these growths, and deeply sacculated at the sides; its coats were enormously thickened. Both ureters were distended into subsidiary receptacles, as thick as a man's finger, their whole length. Both kidneys were a mass of disease. The cortical and secreting structure had disappeared, and was replaced by such a number of small abscesses (from the size of a pea to that of a hazel-nut, and filled with yellow pus), that it is hard to understand how these organs could have at all performed their functions. Both renal capsules seemed enlarged and indurated. The testes and spermatic cords were quite free from disease.

The foregoing case affords a very good illustration of this terrible malady, as well in the symptoms observed during life, as in the post-mortem appearances. It suggests several important points for consideration, to a few of which I shall briefly advert. Primary cancer of the bladder is by no means an uncommon complaint among men, though it rarely occurs in the female; when cancer *does* attack the female bladder, it will be found in almost every instance to be secondary, and to have extended from the uterus. With few exceptions, it begins in the neck of the bladder, in this respect resembling carcinoma uteri, which as invariably commences in the cervix of that organ. The close vascular connexion that exists between the urinary and generative organs, and the near relation they bear to each other both in structure and physiology, might seem to warrant the inference that, when either is attacked with malignant disease, the other must sooner or later be involved. Such a conclusion, however, would be erroneous, and it will be found, on the contrary, that disease may exist to a fatal extent in either, without the other becoming at all implicated. Of this the foregoing case affords an example. Here the prostate was healthy, though in close contiguity with extensive disease of the vesical surface, and there was no organic change in the testes or cords, while the kidneys were entirely disorganized. It is true, this complication does occasionally happen, but such cases constitute the exception, not the rule.

Cancer is more prone to attack the urinary organs in the male, and the generative in the female. On the whole, no satisfactory connexion has been established between the diseases of the urinary system generally and the development of cancer, and we are as much at a loss to account for its occurrence in these organs as in any other part of the frame. In this case the morbid action probably originated in the fall on the perineum, in the same way as a blow sometimes lights up scirrhus of the mamma in the cancerous diathesis; the local injury being necessary to the development of the morbid action, which might otherwise have remained dormant. This complaint is seldom met with before the age of 40, the majority of cases occurring between the ages of 50 and 60. Grief and the depressing passions are so often associated with it, that, in certain states of health, they may perhaps be regarded as predisposing causes. Scirrhus is rare in the bladder, encephaloid being the form most commonly observed. It may coexist with calculus, and in a measure predispose to this affection, by impeding the discharge of urine, and so leading

to a hypersecretion of phosphatic salts and the deposition of calcareous matter; these deposits often form an incrustation over the tumour, which may convey to the hand the sensation of stone. The disease usually begins in the triangular space between the orifices of the urethra and ureters, sometimes on the fundus or anterior surface, but rarely on the sides of the organ. Hemorrhage is often the earliest symptom: at first the surface of the tumour is smooth, until the mucous membrane is destroyed, after which fungi sprout up, and it becomes rugged, from the development of highly vascular vegetations, which spring from a hard base, and often bleed freely and obstinately. The base may be broad and flat, or pedunculated, and encrusted with the calcareous substance already alluded to. In general only one tumour is found, but often two or more. By degrees they fill the cavity of the viscus, and by pressing on the orifices of the ureters prevent the descent of the urine into the bladder, thereby leading to dilatation of these ducts, and eventually to disease of the kidney.

One of the earliest effects of the fungus, when seated in the cervix, is to obstruct the urethral orifice; producing, first, difficulty in micturition, and afterwards complete retention: the increased efforts only forcing the tumour more tightly against the opening. The impossibility of entirely emptying the viscus leads to accumulations of fetid urine, which soon decomposes, and the free ammonia thus formed still further irritates the already inflamed mucous membrane. This state of things may lead to suppression of urine and uremic poisoning, the patient dying comatose. It is a curious fact, however, that patients afflicted with cancer of the kidneys do *not*, as so commonly happens when the organ is affected with diseases of other kinds, die comatose. On the contrary, as in the case before us, they retain their faculties clear to the last even in the worst cases. The duration of the disease varies from six months to many years.

In the early stages the diagnosis is always difficult, often impracticable: the result is much suffering to the patient, which might be spared him if the true nature of his complaint could be earlier ascertained. It may be mistaken for chronic vesical catarrh, the result of old stricture, diseased prostate, or stone; and especially if, as sometimes happens, the catarrh be accompanied by ulceration of the mucous lining, leading to frequent hemorrhage; the presence or otherwise, however, of stricture or enlargement of the prostate will, in connexion with the history of the case and present symptoms, in most cases enable the practitioner to decide correctly. But the worst

error, and that which is most likely to happen, is to mistake the complaint for stone. Suffering from an incurable malady, and failing to get relief from any one, the unfortunate patient goes about from one practitioner to another. His symptoms resemble those of stone, and each sounds and catheterizes him in turn: thus he undergoes the same ordeal of torture from all, to the great detriment both of mind and body. In such cases the microscope is an invaluable means of converting doubt into certainty. It is true, mistakes have been made in microscopic examinations; but these are chargeable, not against the instrument, but the want of skill in the operator, and do not invalidate its efficacy in experienced hands. I would say, then, that when the patient is advanced in life, of cachectic aspect, when repeated trials have failed to detect stone, and there is no evidence of stricture or enlarged prostate; when there is frequent hemorrhage recurring, without any apparent cause, and the catheter is arrested in passing through the neck of the bladder; and when to these symptoms is added the discovery in the urine of cancer cells and encephaloid detritus; especially if cancer be hereditary in the patient's family, there should no longer be any doubt as to the malignant nature of the disease, and that, under such circumstances, to torture the patient any further with soundings for stone is as cruel as it is useless.

The following remarks may aid in the diagnosis of the earlier stages of these very difficult cases. Hemorrhage is a frequent symptom both of cancer and stone: in the former it comes on capriciously, and apparently without cause, when the patient is at rest, and is often profuse and obstinate; in the latter it is mostly induced by rough exercise, is small in quantity, and never obstinate. Cancer is always a disease of advanced life; stone is often met with in young people and children; in cancer the incrustations that simulate calculus are fixed and immovable; whereas a stone in the bladder, unless it be encysted (which is a rare occurrence), shifts its position from time to time. In stone there is generally no difficulty in passing an instrument; in cancer of the cervix of bladder (its common seat) there is always difficulty, which increases with the progress of the disease. It may be added that in stone the stream of urine often stops suddenly, but when the patient turns on his side or back, it again flows freely. In cancer of the cervix such sudden interruptions seldom occur, unless when occasional clots of blood or mucus get impacted in the urethra.

In the treatment of this disease much may be done, if not to cure, at least to relieve the patient. In the early stages the

urine will be mostly found to be acid: hence the benefit resulting from the alkalies, which may be advantageously given with pareira brava (the best preparation of which is the decoction) in combination with sedatives, and, in cases where there is much irritability of the bladder or kidney, buchu will be found very useful. The Seltzer and Vichy waters also will be indicated, owing to the free carbonate of soda they contain. But when the complaint has been of long continuance, the quality of the urine changes, and becomes alkaline, with an excess of the phosphates. In such cases alkalines are contra-indicated. They disorder the stomach, and impair the general health, inducing a flabby state of the muscles and an anemic condition of the system. More benefit will be likely to accrue at this stage of the complaint from light tonics (perhaps with the mineral acids), and from a suitable diet and regimen. But frequent washings of the bladder with warm decoction of poppy-heads, twice or three times a week, will be the surest means of affording comfort and relief to the patient. In most cases the elastic bottle and single catheter will answer the purpose very well; but it sometimes happens, when the bladder is inflamed and very irritable, that an injection of even a few ounces will cause painful feelings of distention, and especially in those instances where rapid fungous growths encroach on the cavity of the viscus. In such the double canula, catheter, and syringe, by which a continuous stream may be passed through the bladder, will be found most effectual.